

MAX HOWARD SHERMAN
Energy Performance of Buildings Group
Indoor Environment Department
Environmental Energy Technologies Division
Lawrence Berkeley National Laboratory
Berkeley, CA 94720

PUBLICATIONS

PATENTS & PH.D. DISSERTATION

- 1 M.P. Modera, M.H. Sherman, *Methods and Apparatus for Measuring the Tightness of Enclosures*, U.S. Patent #4,635,469; 1987.
- 2 M.H. Sherman, "Air Infiltration in Buildings", University Microfilm, 1980. [LBL-10712]

BOOKS & SERIES CHAPTERS

- 3 M.H. Sherman, D.A. Jump. "Thermal Conservation in Buildings", chapter 6.3 of *CRC Handbook of Heating, Ventilation, and Air Conditioning*, Jan F. Kreider Eds. pp. 6.92- 120, CRC Press ISBN-0-8493-9584-4; 2001.
- 4 M.H. Sherman, D.A. Jump. "Energy Conservation in Buildings", chapter 9 of *CRC Handbook of Conservation and Renewable Energy Systems*, Kreith & West Eds. pp. 269-304, CRC Press, 1997.
- 5 M.H. Sherman, Ed. "Utility-Related Research", Special Edition of *Energy and Buildings*, 22:3, 1995.
- 6 M.H. Sherman, J.L. Stoops Eds, *ACEEE 1994 Summer Study on Energy Efficiency in Buildings*, 10 Vols, American Council for an Energy-Efficient Economy, Wash. D.C. 1994.
- 7 M.H. Sherman Ed, *Air Change Rate and Air Tightness in Buildings*, Philadelphia, American Society for Testing and Materials, STP:1067, 1990.
- 8 M.H. Sherman, "Air Infiltration in Buildings" in *Energy Sources: Conservation and Renewables*, (Hafemeister, Kelly, Levi, Eds.) Appendix G, Washington DC, American Physical Society, AIP:135, 1985. [LBL-20120]

REFEREED ARCHIVAL ARTICLES

- 9 D.J. Dickerhoff., I.S. Walker, and M.H. Sherman, "Validating and Improving the DeltaQ Duct Leakage Test," *ASHRAE Trans. (In press)* LBNL 53959 (2004)
- 10 M. H. Sherman, "ASHRAE's New Residential Ventilation Standard," *ASHRAE J.* **46**(1) pp. S149-156, (LBNL 53776) 2004
- 11 I.S. Walker, and M.H. Sherman, "Sealant Longevity for Residential Ducts". *Durability of Building and Construction Sealants and Adhesives*, ASTM STP 1453, A. Wolf Ed., American Society for Testing and Materials, West Conshohocken, Pa. (LBNL 50189) 2003.
- 12 I.S. Walker, M.H. Sherman, "An Easier Way to Measure Duct Leaks", *Home Energy*, **19**(5); pp. 34-38, Sept/Oct 2002. [LBNL-49749]
- 13 M.H. Sherman, A.T. Hodgson, "Formaldehyde as a Basis for Residential Ventilation Rates," *Indoor Air* **14**(1) pp 2-9, 2004; Lawrence Berkeley Laboratory Report LBNL-49577 2002.

- 14 C.P. Wray, N.E. Matson, M.H. Sherman, "Selecting Whole-Hose Ventilation Strategies to Meet Proposed ASHRAE Standard 62.2: Energy Cost Considerations," *ASHRAE Transactions*, **106** (II), 2000; Report No. LBNL-44479.
- 15 I.S. Walker, M.H. Sherman, "Assessing the Longevity of Residential Duct Sealants," in *Durability of Building and Construction Sealants*, (A.T. Wolf Ed.) pp. 71-86; RILEM Publications, 1999; (ISBN: 2-912143-13-6); Report No. LBNL 43381 Jan. 2000.
- 16 M.H. Sherman, "Indoor Air Quality For Residential Buildings", *ASHRAE Journal*, **41**(5) , pp. 26-30; May 1999. [Lawrence Berkeley Laboratory Report No. LBL-42975]
- 17 M.H. Sherman, D. J. Dickerhoff, "Air Tightness of U.S. Dwellings," *ASHRAE Trans.*, **104**(2), pp. 1359-1367 1998 [Report No. LBL-35700]
- 18 M.H. Sherman, I.S. Walker, "Can Duct Tape Take the Heat?", *Home Energy*, **15**(4); pp.14- 19, July/August 1998. [LBNL-41434]
- 19 I.S. Walker, D.J. Wilson, M.H. Sherman, "A Comparison of the Power Law to Quadratic Formulations for Air Infiltration Calculations," *Energy and Buildings*, (27), pp 293-299, 1998. [LBNL-41447]
- 20 M.H. Sherman, N.E. Matson, "Residential Ventilation and Energy Characteristics," *ASHRAE Trans.* **103**(1) pp. 717-730, 1997. [LBNL-39036]
- 21 M.H. Sherman, "The Use of Blower-Door Data", *Indoor Air*, **5**; pp. 215-224, 1995 [LBL- 35173]
- 22 M.H. Sherman, L. Palmiter, "Uncertainty in Fan Pressurization Measurements" in *Airflow performance of envelopes, components and systems*, Philadelphia, American Society for Testing and Materials (STP 1255), Modera & Persily Eds., pp. 262-283, 1994 [LBL- 32115]
- 23 L. Palmiter, M.H. Sherman, "Measured Air Flows in Multifamily Buildings" in *Airflow performance of envelopes, components and systems*, Philadelphia, American Society for Testing and Materials, (STP 1255), Modera & Persily Eds., pp. 7-22, 1994. [LBL-32116]
- 24 M.H. Sherman, D.J. Dickerhoff, "Monitoring Ventilation and Air Leakage in a Low-Rise Commercial Building," in *Solar Engineering* (Klett, Hogan, Tanaka Eds.), American Society of Mechanical Engineers, Book No. **G00837**, pp. 291-297, 1994. [LBL-34562]
- 25 M.H. Sherman, "Single-Zone Stack-Dominated Infiltration Modeling", *Indoor Air*, **2**(4), 1992. [LBL-30147]
- 26 M.H. Sherman, "Superposition in Infiltration Modeling", *Indoor Air*, **2**, pp. 101-114, 1992. [LBL-29116]
- 27 M.H. Sherman, "A Power-Law Formulation of Laminar Flow in Short Pipes", *Journal of Fluids Engineering*, **114**, pp. 601-605, 1992. [LBL-29414]
- 28 M.H. Sherman, "Tracer Gas Techniques for Measuring Ventilation in a Single Zone", *Building and Environment*, **25**(4), pp. 365-374, 1990. [LBL-29328]
- 29 A.N. Tuluca, M.H. Sherman, M. Krarti, "Reduction of the Effective Leakage Areas of Single-Section HUD-Code Manufactured Homes Due to Air Infiltration Barriers", *ASHRAE Trans.* **96**(1), 1990.
- 30 D.T. Harje, R.N. Dietz, M.H. Sherman, et al, "Tracer Gas Measurement Systems Compared in a Multifamily Building" in *Air Change Rate and Air Tightness in Buildings* (M.H. Sherman Ed.) pp. 5-20, Philadelphia, American Society for Testing and Materials, STP:1067, 1990.
- 31 M.H. Sherman, "A Multi-Tracer System for Multizone Ventilation Measurements", *Review of Scientific Instruments*, **61**(9), pp. 2457-2461, 1990. [LBL-29010]

- 32 M.H. Sherman, "Uncertainty in Air Flow Calculations Using Tracer Gas Measurements", *Building and Environment*, **24**(4), pp. 347-354, 1989. [LBL-25415]
- 33 M.H. Sherman, "On Estimation of Multizone Ventilation Rates from Tracer Gas Measurements", *Building and Environment*, **24**(4), pp. 355-362, 1989. [LBL-25772]
- 34 M.H. Sherman, "Analysis of Errors Associated with Passive Ventilation Measurement Techniques", *Building and Environment*, **24**(2), pp. 131-139, 1989. [LBL-23088]
- 35 H.E. Feustel, M.H. Sherman, "A Simplified Model for Predicting Air Flow in Multizone Structures", *Energy and Buildings*, **13**(3), pp. 217-239, 1989. [LBL-22325]
- 36 M.H. Sherman, M.P. Modera, "Signal Attenuation Due to Cavity Leakage", *Journal of Acoustical Society of America*, **84**(6), 1988. [LBL-24289]
- 37 M.P. Modera, M.H. Sherman, S. de Vinuesa, "In-Situ Measurements of Wall Thermal Performance: Data Interpretation and Apparatus Design Recommendations" in *Thermal Insulation, Materials and Systems*, (Powell/Mathews Eds.) pp. 91-106, Philadelphia, American Society for Testing and Materials, STP:922, 1987. [LBL-17773]
- 38 M.H. Sherman, "Estimation of Infiltration from Leakage and Climate Indicators", *Energy and Buildings*, **10**, pp. 81-86, 1986. [LBL-21463]
- 39 M.H. Sherman, D.J. Wilson, "Relating Actual and Effective Ventilation in Determining Indoor Air Quality", *Building and Environment*, **21**(3/4), pp. 135-144, 1986. [LBL 20424]
- 40 M.H. Sherman, M.P. Modera, "Low Frequency Measurement of the Leakage of Enclosures", *Rev. Scientific Instruments*, **57**(7), pp. 1427, 1986. [LBL-20121]
- 41 M.H. Sherman, "Infiltration Degree-Days: A Statistic for Infiltration-Related Climate", *ASHRAE Trans.* **92**(2A), pp 161-181, 1986. [LBL-19237]
- 42 M.H. Sherman, D.J. Wilson, D. Kiel, "Variability in Residential Air Leakage" in *Measured Air Leakage Performance of Buildings*, (Trechsel/Lagus Ed.) pp. 348-364, Philadelphia, American Society of Testing and Materials, STP:904, 1986. [LBL-17587]
- 43 M.H. Sherman, M.P. Modera, "Infiltration Using the LBL Infiltration Model" in *Measured Air Leakage Performance of Buildings*, (Trechsel/Lagus Ed.) pp. 325 - 347, Philadelphia, American Society of Testing and Materials, STP:904, 1986. [LBL-17001]
- 44 D. Kiel, D.J. Wilson, M.H. Sherman, "Air Leakage Flow Correlations for Varying House Construction", *ASHRAE Trans.* **91**(1), 1985. [LBL-18732]
- 45 M.H. Sherman, "Simplified Model of Thermal Comfort", *Energy and Buildings*, **8**, pp. 37- 50, 1985. [LBL-15923]
- 46 M.H. Sherman, S. Ashley, "The Calculation of Natural Ventilation and Comfort", *ASHRAE Trans.* **90**(1), 1984. [LBL-16036]
- 47 M.P. Modera, M.H. Sherman, P.A. Levin, "A Detailed Examination of the LBL Infiltration Model with the Mobile Infiltration Test Unit", *ASHRAE Trans.* **89**, 1983. [LBL-15636]
- 48 M.H. Sherman, J.W. Adams, R.C. Sonderegger, "Simplified Thermal Parameters: A Model of the Dynamic Performance of Walls" in *Thermal Insulation, Materials and Systems for Energy Conservation in the 80's*, (Govan/Greaseon/McAllister Eds.) pp. 355-373, Philadelphia, American Society of Testing and Materials, STP:789, 1983. [LBL-13503]
- 49 M.H. Sherman, R.C. Sonderegger, J.W. Adams, "The Determination of the Dynamic Performance of Walls", *ASHRAE Trans.* **88**(1), pp. 689, 1982. [LBL-13510]

- 50 M.P. Modera, M.H. Sherman, D.T. Grimsrud, "A Predictive Air Infiltration Model -- Long- Term Field Test Validation", *ASHRAE Trans.* **88**(1), 1982. [LBL-13509]
- 51 M.H. Sherman, D.T. Grimsrud, "Infiltration-Pressurization Correlation: Simplified Physical Modeling", *ASHRAE Trans.* **86**(2), pp. 778-807, 1980. [LBL-10163]
- 52 D.T. Grimsrud, M.H. Sherman, J.E. Janssen, A.N. Pearman, D.T. Harje, "An Intercomparison of Tracer Gasses Used for Air Infiltration Measurements", *ASHRAE Trans.* **86**(1), pp. 258-267, 1980. [LBL-8394]
- 53 P.E. Condon, D.T. Grimsrud, M.H. Sherman, R.C. Kammerud, "An Automated Controlled Flow Air Infiltration Measurement System" in *Building Air Change Rate and Infiltration Measurements*, (Hunt/King/Trechsel Eds.) pp. 60-72, Philadelphia, American Society of Testing and Materials, STP:719, 1980. [LBL-6849]
- 54 M.H. Sherman, D.T. Grimsrud, R.C. Diamond, "Infiltration-Pressurization Correlations: Surface Pressures and Terrain Effects", *ASHRAE Trans.* **85**(2), pp. 458-479, 1979 [LBL- 8785]
- 55 D.T. Grimsrud, M.H. Sherman, R.C. Diamond, P.E. Condon, A.H. Rosenfeld, "Infiltration-Pressurization Correlations: Detailed Measurements on a California House", *ASHRAE Trans.* **85**(2) pp. 851-865, 1979. LBL-7824]

OTHER EXTERNAL PEER-REVIEWED ARTICLES, REPORTS

- 56 M.H. Sherman, "ASHRAE's First Residential Ventilation Standard". *Proc. ASHRAE-DOE-BTECC Thermal Performance of the Exterior Envelopes of Buildings IX (In Press)*. LBNL 54331, 2004
- 57 I.S. Walker, M.H. Sherman, and D.J. Dickerhoff, "Uncertainty Evaluation of the DeltaQ Duct Leakage Test". *Proc. ASHRAE-DOE-BTECC Thermal Performance of the Exterior Envelopes of Buildings IX (In Press)*. LBNL 53549, 2004.
- 58 M.H. Sherman, N.E. Matson, "Reducing Indoor Residential Exposures to Outdoor Pollutants", Technical Note 58, Air Infiltration and Ventilation Centre, INIVE.eeig Belgium, 2003. [LBL-51758]
- 59 J.A. Siegel, I.S. Walker, M.H. Sherman. "Dirty Air Conditioners: Energy Implications of Coil Fouling", *Proc. 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy. LBNL-49757
- 60 I.S. Walker, D.J. Dickerhoff, M.H. Sherman, "The Delta Q Method of Testing the Air Leakage of Ducts", *Proc. 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy LBNL-49749
- 61 C.P. Wray, I.S. Walker, M.H. Sherman. "Accuracy of Flow Hoods in Residential Applications", *Proc. 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy. LBNL-49697
- 62 B. Abushakra, I.S. Walker, M.H. Sherman, "A Study of Pressure Losses in Residential Air Distribution Systems" *Proc. 2002 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy/ LBNL-49700.

- 63 M.H. Sherman and I.S. Walker, “*Heat Recovery in Building Envelopes*” Proc. Performance of the Exterior Envelopes of Whole Buildings VIII Conference, Clearwater Beach, FL. December 2001. LBNL-47329. 2001.
- 64 C.P. Wray, and M.H. Sherman. 2001. “*Residential Commissioning to Assess Envelope and HVAC System Performance*”. Proc. Performance of the Exterior Envelopes of Whole Buildings VIII Conference, Clearwater Beach, FL. December 2001. LBNL-47412.
- 65 M.H. Sherman, “ASHRAE’s Residential Ventilation Standard: Exegesis of Proposed Standard 62.2”, *Proc. ASHRAE-CIBSE Symposium, Dublin*; Sept 2000 Report LBNL-42975.
- 66 J.A. Siegel, I.S. Walker, M.H. Sherman, “Delivering Tons to the Register: Energy Efficiency, Design and Operation of Residential Cooling Systems”, *Proc. 2000 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy [LBL-45315]
- 67 M.H. Sherman, I.S. Walker, D.J. Dickerhoff, “Stopping Duct Quacks: Longevity of Duct Sealants”, *Proc. 2000 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy [LBL-45423]
- 68 I.S. Walker, K. Brown, J. Siegel, M.H. Sherman, “Savings Tons at the Register”, *Proc. 1998 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington DC, American Council for an Energy-Efficient Economy; **I**, pp. 367; 1998. [LBNL 41957].
- 69 M.H. Sherman, H. Levin, “Renewables in Ventilation and Indoor Air Quality” in Renewable Energy, Energy Efficiency and the Environment (World Renewable Energy Conf. 1996), *Renewable Energy*, (**I**) pp. 236-240, Pergamon, 1996. [Report No. LBL-38258]
- 70 M.H. Sherman, “Simplified Modeling for Infiltration and Radon Entry”, Proc. ASHRAE/DOE/BTECC Conference, *Thermal Performance of the Exterior Envelopes of Buildings Conference V* (addendum), Clearwater Beach, FL, American Society of Heating, Refrigerating and Air-conditioning Engineers, 1992. [LBL-31305]
- 71 M.H. Sherman, H.E. Feustel, D.J. Dickerhoff, “Description of a System for Measuring Interzonal Air Flows using Multiple Tracer Gasses” in *Heat and Mass Transfer in Building Materials and Structures* (Chaddock and Todorovic Eds.), pp. 781-790, New York, Hemisphere, 1990. [LBL-26538]
- 72 H.E. Feustel, M.H. Sherman, “The COMIS Infiltration Model a Tool for Multizone Applications” in *Heat and Mass Transfer in Building Materials and Structures* (Chaddock and Todorovic Eds.), pp. 771-779, New York, Hemisphere, 1990. [LBL-26550]
- 73 M.H. Sherman, D.J. Dickerhoff, “A Multigas Tracer System for Multizone Air Flow Measurements”, Proc. ASHRAE/DOE/BTECC Conference, *Thermal Performance of the Exterior Envelopes of Buildings Conference IV*, pp. 417-432, American Society of Heating, Refrigerating and Air-conditioning Engineers, 1989. [LBL-26087]
- 74 M.H. Sherman, “ASHRAE’s Air Tightness Standard for Single-Family Houses” in *Single-Family Building Technology* (J. Spears Ed.) Vol 1 of Proc. 1988 ACEEE Summer Study on Energy Efficiency in Buildings, pp.167-171, Washington DC, American Council for an Energy-Efficient Economy, 1988. [LBL-17585]
- 75 M.H. Sherman, J.B. Dickinson, “Fan Pressurization Techniques for the Estimation of Air Infiltration”, Proc. ASHRAE/DOE/BTECC Conference, *Thermal Performance of the Exterior Envelopes of Buildings III*, Clearwater, Florida, American Society of Heating, Refrigerating and Air-conditioning Engineers, 1985. [LBL-19336]
- 76 M.H. Sherman, D.T. Grimsrud, R.C. Sonderegger, “The Low Pressure Leakage Function of a Building”, Proc. ASHRAE-DOE Conference on *Thermal Performance of Exterior Envelopes of*

- Buildings*, American Society of Heating, Refrigerating and Air-conditioning Engineers, SP 28, 1979. [LBL-9162]
- 77 A.K. Blomsterberg, M.H. Sherman, D.T. Grimsrud, "A Model Correlating Air Tightness and Air Infiltration in Houses", Proc. ASHRAE-DOE Conference on *Thermal Performance of Exterior Envelopes of Buildings*, American Society of Heating, Refrigerating and Air-conditioning Engineers, SP 28, 1979[LBL-9625]

OTHER PROCEEDINGS

- 78 I.S. Walker and M.H. Sherman. 2003. Heat Recovery in Building Envelopes. Proc. 24th AIVC BETEC Conference, INIVE eieg, Brussels, Belgium. [LBNL 53484]
- 79 M.H. Sherman, N.E. Matson, "Air Tightness in New U.S. Housing" Proc. 22nd AIVC Conference, *Air Infiltration and Ventilation Centre*; Sept 2001. [LBNL-48671]
- 80 C. R. Buchanan, M.H. .Sherman, "A Mathematical Model of Infiltration Heat Recovery," Proc. 21st AIVC Conference, *Air Infiltration and Ventilation Centre (#45)*; ,Sept 2000. [LBNL-44294].
- 81 M.H. Sherman, "ASHRAE's Residential Ventilation Standard: Exegesis of Proposed Standard 62.2", Proc. 12th Symposium on Improving Building Systems in Hot and Humid Climates, pp. 136-145; Texas Building Energy Institute, May 2000; Report LBNL-42975.
- 82 C. R. Buchanan, M.H. .Sherman, "Simulation of Infiltration Heat Recovery," Proc. 19th AIVC Conference, *Air Infiltration and Ventilation Centre*, pp. 17-26 1998 ; [LBNL- 42098].
- 83 M.H. Sherman, N.E. Matson, "Residential Ventilation and Energy Characteristics: U.S. Housing," Proc 17th AIVC Conf. *Optimum Ventilation and Air Flow Control in Buildings*, (I) *Air Infiltration and Ventilation Centre*, pp185-196, 1996
- 84 F. Olken et al. "The Role of Building Life-Cycle Information Systems in the Delivery of Energy Services," Proc. NIST/EPRI: *ATP: Information and Telecommunications for the U.S. Utilities Industry Focussed Program Development*, Atlanta GA Jan. 1995. [LBL- 36745]
- 85 M.H Sherman, D.J. Dickerhoff "Air Tightness of U.S. Dwellings," Proc 15th Air Infiltration and Ventilation Centre Conference, Buxton, UK, 1994. [LBL-35700]
- 86 M.H. Sherman, N.E. Matson, "Ventilation-Energy Liabilities in U.S. Housing", Proc. 14th Air Infiltration and Ventilation Centre Conference, Copenhagen Denmark, 1993. [LBL- 33890]
- 87 M.H. Sherman, "Air Infiltration Measurement Techniques", Proc. 10th Air Infiltration and Ventilation Centre Conference, Espoo, Finland, 1989. [LBL-27656]
- 88 M.H. Sherman, "Exegesis of Proposed ASHRAE Standard 119: Air Leakage Performance for Detached Single-Family Residential Buildings", Proc. BTECC/DOE Symposium on *Guidelines for Air Infiltration, Ventilation, and Moisture Transfer* (D. Eakin Ed.), Fort Worth, TX, 1988. [LBL-21040]
- 89 M.H. Sherman, "Multizone Modeling and Air Leakage Analysis", Proc, 6th Air Infiltration Centre Conference, Het Meerdal, Netherlands, 1985. [LBL-19776]
- 90 M.H. Sherman, J.B. Dickinson, "The Prediction of Air Infiltration", Proc. CLIMA 2000 Conference, Copenhagen, Denmark, August 1985. [LBL-19040]
- 91 M.H. Sherman, D.T. Grimsrud, "A Comparison of Alternate Ventilation Strategies", Proc. Third AIC Conference, London, United Kingdom, September 1982. [LBL-13678]
- 92 M.H. Sherman, D.T. Grimsrud, "Wind and Infiltration Interaction for Small Buildings", Proc. ASCE Annual Meeting, New Orleans, Louisiana. October 1982. [LBL-13949]
- 93 D.T. Grimsrud, M.H. Sherman, R.C. Sonderegger, "Prediction and Measurement of Infiltration in Residential Buildings: in Application to a Construction Quality Standard", Proc. Third Joint

- Symposium on the *Performance Concept in Buildings*, Lisbon, Portugal, March 1982. [LBL-13535]
- 94 R.C. Sonderegger, M.H. Sherman, J.W. Adams, "The Envelope Thermal Test Unit (ETTU): Field Measurement of Wall Performance", Proc. Third International Symposium on *Energy Conservation in the Built Environment*, Dublin, Ireland, March 1982. [LBL-13436]
- 95 M.H. Sherman, M.P. Modera, D.T. Grimsrud, "A Predictive Air Infiltration Model--Field Validation and Sensitivity Analysis", Proc. Third International Symposium on *Energy Conservation in the Built Environment*, Dublin, Ireland, March 1982. [LBL 13520]
- 96 M.P. Modera, M.H. Sherman, D.T. Grimsrud, "Long-Term Infiltration Measurements in a Full-Scale Test Structure", Proc. 2nd Air Infiltration Centre Conference, Stockholm, Sweden, September 1981. [LBL-13504]
- 97 D.T. Grimsrud, R.C. Sonderegger, M.H. Sherman, "Infiltration Measurements in Audit and Retrofit Programs", Proc. IEA Energy Audit Workshop, Elsinore, Denmark, April 1981. [LBL-12221]
- 98 M.P. Modera, M.H. Sherman, D.T. Grimsrud, "Wind and Infiltration--A Description of a Predictive Model", Proc. ASCE International Convention, 81-116, New York, May 1981.[LB-12597]
- 99 M.H. Sherman, D.T. Grimsrud, "The Measurement of Infiltration using Fan Pressurization and Weather Data", Proc. First Air Infiltration Centre Conference, London, England, 1980. [LBL-10752]
- 100 M.H. Sherman, D.T. Grimsrud, P.E. Condon, B.V. Smith, "Air Infiltration Measurement Techniques" Proc. First Air Infiltration Centre Conference, Windsor, England, 1980. [LBL-10705]
- 101 D.T. Grimsrud, M.H. Sherman, A.K. Blomsterberg, A.H. Rosenfeld, "Infiltration and Air-Leakage Comparisons: Conventional and Energy-Efficient Housing Designs", Proc. of the International Conference on *Energy Use Management*, Los Angeles, 1979. [LBL- 9157]
- 102 D.T. Grimsrud, M.H. Sherman, R.C. Diamond, R.C. Sonderegger, "Air Leakage, Surface Pressures and Infiltration Rates in Houses", Proc. Second International CIB Symposium on *Energy Conservation in the Built Environment*, Copenhagen, Denmark, pp. 127-140, 1979. [LBL-8828]

OTHER PUBLICATIONS

- 103 M. H. Sherman, "Next Steps for 62.2", *IAQ Applications*, **5**(1) pp. 1-3; ASHRAE, 2004.
- 104 I.S. Walker, and M. H. Sherman, "Ventilation Technologies Scoping Study". Report to California Energy Commission. LBNL 53811. 2003
- 105 T.E. Mckone and M. H. Sherman, "Residential Ventilation Standards Scoping Study", Report to California Energy Commission, LBNL-53800, 2003
- 106 I.S. Walker, D.E. Brenner, M.H. Sherman and D.J. Dickerhoff. 2003. "Evaluation of PEGIT Duct Connection System". LBNL 43382
- 107 M. H. Sherman, "Residential Ventilation Standard Approved", *IAQ Applications*, **4**(4) pp. 1-3 ASHRAE, fall 2003.
- 108 M.H. Sherman, I.S. Walker, "Advanced Duct Sealant Testing" Report to California Energy Commission, Lawrence Berkeley Laboratory LBNL 55347 (2003)

- 109 M. H. Sherman, "Standard 62.2P Ready to Publish", *IAQ Applications*, **4**(3) pp. 12 ASHRAE, summer 2003.
- 110 M. H. Sherman, "Standard 62.2P Completes 4th Review", *IAQ Applications*, **4**(2) pp. 6 ASHRAE, Spring 2003.
- 111 C.P. Wray, I.S. Walker, M.H. Sherman, "Instrumented Home Energy Rating and Commissioning", LBL Report 52216, (2003)
- 112 M. H. Sherman, "Standard 62.2P Addenda", *IAQ Applications*, **4**(1), pp. 10; ASHRAE, Winter 2003.
- 113 C.P. Wray, I.S. Walker, M.H. Sherman, "Guidelines for Residential Commissioning", LBL Report 48767, (2003)
- 114 M. H. Sherman, "SPC 62.2P Approves Fourth Public Review", *IAQ Applications*, **3**(4) pp. 7-8; ASHRAE, Fall 2002.
- 115 Wray, C.P., I.S. Walker, J.A. Siegel, and M.H. Sherman. "Practical Diagnostics for Evaluating Residential Commissioning Metrics". Lawrence Berkeley National Laboratory Report LBNL-45959. 2002
- 116 M.H. Sherman, "SPC 62.2P Comments Review", *IAQ Applications*, **3**(3) pp. 10; ASHRAE, Summer 2002.
- 117 M.H. Sherman, T. Xu, B., Abushakra, D. Dickerhoff, C.P. Wray, D. Wang, M.P. and Modera, "Thermal Distribution System Characteristics and Energy Impacts of Duct Leaks in Light Commercial Buildings". Lawrence Berkeley Laboratory Report, LBNL-49470, 2002.
- 118 B. Abushakra, I.S. Walker, D.J. Dickerhoff, M.H. Sherman, "Laboratory Study of Pressure Losses in Residential Air Distribution Systems," Lawrence Berkeley Laboratory Report LBNL-49293, 2002.
- 119 M.H. Sherman, "Third Review Approved for 62.2P", *IAQ Applications*, **3**(2) pp. 9; ASHRAE, Spring 2002.
- 120 M.H. Sherman, I.S. Walker, "Residential HVAC and Distribution Research Implementation: Final Report" Lawrence Berkeley Laboratory Report LBNL-47214, 2002.
- 121 N.E. Matson, C.P. Wray, I.S. Walker, M.H. Sherman, "Potential Benefits of Commissioning California Homes," Lawrence Berkeley Laboratory Report LBNL-48258, 2002.
- 122 M. H. Sherman, "62.2P Completes 2nd Public Review", *IAQ Applications*, **3**(1), pp. 10; ASHRAE, Winter 2001/2002.
- 123 I.S. Walker, M.H. Sherman, J. Wempen, D. Wang. J. A McWilliams, D.J. Dickerhoff, "*Development of a New Duct Leakage Test: DeltaQ*", Lawrence Berkeley National Laboratory Report LBNL-47308, 2001.
- 124 M. H. Sherman, "Comments Welcome on 62.2P", *IAQ Applications*, **2**(4) pp. 10; ASHRAE, Fall 2001.
- 125 I.S. Walker, C.P. Wray D.J. Dickerhoff, M.H. Sherman, "*Evaluation of Flow Hood Measurements for Residential Register Flows*", Lawrence Berkeley Laboratory Report LBNL-47382, 2001.
- 126 M. H. Sherman, "More Input Offered on 62.2P", *IAQ Applications*, **2**(3) pp. 15; ASHRAE, Summer 2001.

- 127 M.H. Sherman, "ASHRAE's Residential Ventilation Standard: Exegesis of Proposed Standard 62.2", *Proc. BRASINDOOR, Rio de Janeiro* ; 2001 Report LBNL-42975
- 128 I.S. Walker, M.H. Sherman, J. Wempen, D. Wang, J.A. McWilliams, D.J. Dickerhoff, "Development of a new Duct Leakage Test: DeltaQ," Lawrence Berkeley Laboratory Report LBNL-47308, 2001.
- 129 M. H. Sherman, "An Update on Standard 62.2P", *IAQ Applications*, **2**(2) pp. 9; ASHRAE, Spring 2001.
- 130 M. H. Sherman, "The Standard 62.2 Review", *IAQ Applications*, **2**(1), pp. 12; ASHRAE, Winter 2000/2001.
- 131 M. H. Sherman, "IAQ Proposals for Houses", *IAQ Applications*, **1**(4) pp. 1-3; ASHRAE, Fall 2000.
- 132 C.P. Wray, M.A. Piette, M.H. Sherman, et al, "Residential Commissioning: A Review of Related Literature," *Report to PIER*; March 2000. LBNL-44535
- 133 M. H. Sherman, "Residential Ventilation Standard: A Look at Proposed Requirements", *IAQ Applications*, **1**(1) pp. 20-2; ASHRAE, Winter 1999/2000.
- 134 I.S. Walker, M. H. Sherman, J. Siegel, M.P. Modera, "Effects of Duct Improvement and EnergyStar Equipment on Comfort and Energy Efficiency," *Report to EPA*; 1999. LBNL 43723.
- 135 I.S. Walker, M. H. Sherman, J. Siegel, "Distribution Effectiveness and Impacts on Equipment for Residential Thermal Distribution Systems" *PIER Transition Report to CIEE*, Lawrence Berkeley National Laboratory Report LBNL-43724, June 1999.
- 136 M.H. Sherman, "Standard 62 Goes Residential" *Contracting Business*, **56**(5), pp. 56- 59; May 1999, [Lawrence Berkeley Laboratory Report No. LBL-42975]
- 137 I.S. Walker, M.H. Sherman, J. Siegel, D. Wang, C. Buchanan, M.P. Modera, "Leakage Diagnostics, Sealant Longevity, Sizing and Technology Transfer in Residential Thermal Distribution Systems; Part II", *Phase VI Report to CIEE*, Lawrence Berkeley Laboratory, Report No. LBL-42691, 1999.
- 138 M.H. Sherman, "How Duct Tape Sealed My Place in History," *Washington Post: Outlook*, pp. 1. Sept 13, 1998.
- 139 I.S. Walker, M.H. Sherman, M.P. Modera, J. Siegel, "Leakage Diagnostics, Sealant Longevity, Sizing and Technology Transfer in Residential Thermal Distribution Systems", *Phase V Report to CIEE*, Lawrence Berkeley Laboratory, Report No. LBL-41118, 1998.
- 140 G Koles, R. Hitchcock, M.H. Sherman, "Metrics for Building Performance Assurance," Lawrence Berkeley Laboratory, Report No. LBL-39203, 1996.
- 141 A. Tuluca, M.H. Sherman, "Simplified Multizone Blower Door Techniques for Multifamily Buildings" NYSERDA Report 95-16, 1995
- 142 R.G. Sextro, H.E. Feustel, M.P. Modera, K.L. Revzan, M.H. Sherman, "A Coupled Multizone Flow and Radon Transport Model of Radon Entry and Concentrations in a Crawlspace House", Lawrence Berkeley Laboratory, Report No. LBL-32730, 1992.
- 143 R.C. Diamond, D.J. Dickerhoff, H.E. Feustel, R. Jansky, M.H. Sherman, "Chelsea Public Housing Study: Ventilation and Infiltration Survey. Interim Report to DOE on DOE- HUD Initiative, June 1992.

- 144 M.P. Modera, M.H. Sherman, P.-F. Vacheron, "Pulse Pressurization: A Technique for Measuring Building Air Leakage", Lawrence Berkeley Laboratory, Report No. LBID-1321, 1987.
- 145 M.H. Sherman, R.F. Szydlowski, P.G. Cleary, M.P. Modera M. D. Levine, "Development and Implementation of Survey Techniques for Assessing In-Situ Appliance Efficiencies", Lawrence Berkeley Laboratory, Report No. LBL-23455, 1986.
- 146 M.H. Sherman, M.P. Modera, D. Hekmat, "Energy Impacts of Efficient Refrigerators in the Pacific Northwest", Lawrence Berkeley Laboratory, Report No. LBL-19571, 1985.
- 147 R.C. Diamond, C. Goldman, M.P. Modera, M. Rothkopf, M.H. Sherman, E.L. Vine, "Building Energy Retrofit Research, Multifamily Sector", Lawrence Berkeley Laboratory, Report No. LBL-20165, 1985.
- 148 M.P. Modera, M.H. Sherman, R.C. Sonderegger, "Heat-Flow Measurements in Buildings", Lawrence Berkeley Laboratory, Report No. LBL-17376, 1984.
- 149 M.H. Sherman, "Air Infiltration Research at the Lawrence Berkeley Laboratory" in *Air Infiltration Review*, **4**(4), pp 4-5. 1983. [LBL-16035]
- 150 M.H. Sherman, D.J. Dickerhoff, D.T. Grimsrud, "Field Testing of Wind Cooling Effects on Navy Buildings", Lawrence Berkeley Laboratory, Report No. LBL-14925, 1983.
- 151 D.T. Grimsrud, M.H. Sherman, R.C. Sonderegger, "Construction Quality Standard", Lawrence Berkeley Laboratory, Report No. LBL-9416, 1983.

STANDARDS, COMMITTEE REPORTS AND INSTITUTIONAL PUBLICATIONS

These reports result from significant professional contributions through a committee or other organization:

- 152 *Infiltration and Ventilation Requirements*, Ch. 27 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 2005.
- 153 *Ventilation and Acceptable Indoor Air Quality for, Low-Rise, Residential Buildings*, ASHRAE Standard 62.2-2003, American Society of Heating, Refrigerating and Air Conditioning Engineers, 2003.
- 154 *Infiltration and Ventilation Requirements*, Ch. 26 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 2001.
- 155 *Standard Test Method for Determining Air Leakage Rate by Fan Pressurization*, ASTM Standard E779-99 Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 2000.
- 156 *Ventilation for Acceptable Indoor Air Quality*, ASHRAE Standard 62-99, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 2000
- 157 *Protocols for Energy Efficient Residential Building Envelopes*, Consol, (for the California Institute for Energy Efficiency) 1999.
- 158 *Strategic Plan Report on Implementing the RD&D Provisions of AB1890*, California Energy Commission, 1997.
- 159 *Infiltration and Ventilation Requirements*, Ch. 23 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1997.
- 160 *Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door*, ASTM Standard E1465-96 Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1996

- 161 *Guide to Energy Efficient Ventilation*, Air Infiltration and Ventilation Centre, Great Britain, ISBN 0 946075 85 9, 1996
- 162 *Working Group Report on Public Interest RD&D Activities*, California Public Utilities Commission, 1996
- 163 *Standard Test Methods for Determining Air Change in a Single Zone by Means of a Tracer Gas*, ASTM Standard E741-95) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1995.
- 164 *Standard Specification for an Air Retarder Material or System for Low-Rise Framed Building Walls*, ASTM Standard E1677-95 Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1995
- 165 *1994 Annual Conference Program*, California Institute for Energy Efficiency Lawrence Berkeley Laboratory Report No. LBL-35739, 1994.
- 166 *California Institute for Energy Efficiency 1993 Annual Report*, Lawrence Berkeley Laboratory Report No. LBL-35740, 1994.
- 167 *A Method of Determining Air Change Rates in Detached Dwellings*, ASHRAE Standard 136-1993 (RA 98) American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1993
- 168 *1993 Annual Conference Program*, California Institute for Energy Efficiency Lawrence Berkeley Laboratory Report No. LBL-34353, 1993.
- 169 *Standard Test Methods for Determining Air Change in a Single Zone by Means of a Tracer Gas*, ASTM Standard E741-93) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1993.
- 170 *California Institute for Energy Efficiency 1992 Annual Report*, Lawrence Berkeley Laboratory Report No. LBL-34073 (UC400), 1993.
- 171 *Infiltration and Ventilation*, Ch. 23 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1993.
- 172 *Multiyear Research Plan: 1992-1996*, California Institute for Energy Efficiency, Lawrence Berkeley Laboratory Report No. PUB-5330, 1992.
- 173 *Research & Development Conference Program: 1992*, California Institute for Energy Efficiency, Lawrence Berkeley Laboratory Report No. LBL-32838, 1992.
- 174 *California Institute for Energy Efficiency 1991 Annual Report*, Lawrence Berkeley Laboratory Report No. LBL-31562 (UC400), 1992.
- 175 *Multiyear Research Plan: 1991-1995*, California Institute for Energy Efficiency, Lawrence Berkeley Laboratory Report No. PUB-5308, 1991.
- 176 *Infiltration and Ventilation*, Ch. 23 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1989.
- 177 *Standard Test Method for Airflow Calibration of Fan Pressurization Devices*, ASTM Standard E1258-88 (RA 98) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1988.
- 178 *Air Leakage Performance for Detached Single-Family Residential Buildings*, ASHRAE Standard 119-1988 (RA 94) American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1988

- 179 *Standard Test Method for Determining Air Leakage Rate by Fan Pressurization*, ASTM Standard E779-87 (RA 92) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1987.
- 180 *Standard Practices for Air Leakage Site Detection in Building Envelopes*, ASTM Standard E1186-87 (RA92) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1987.
- 181 *Air Infiltration Calculation Techniques: An Applications Guide* Air Infiltration and Ventilation Centre, *International Energy Agency/ECBCS*, Great Britain, 1986.
- 182 *Infiltration and Ventilation*, Ch. 23 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1985.
- 183 *Standard Test Methods for Determining Air Leakage Rate by Tracer Dilution*, ASTM Standard E741-83 (RA 90) Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1983.
- 184 *Infiltration and Ventilation*, Ch. 23 of ASHRAE Handbook of Fundamentals, American Society of Heating, Refrigerating and Air Conditioning Engineers, Atlanta, 1981.
- 185 *Standard Test Method for Determining Air Leakage Rate by Fan Pressurization Test*, ASTM Standard E779-81 Book of Standards **04.07**, American Society for Testing and Materials, Philadelphia, 1981.